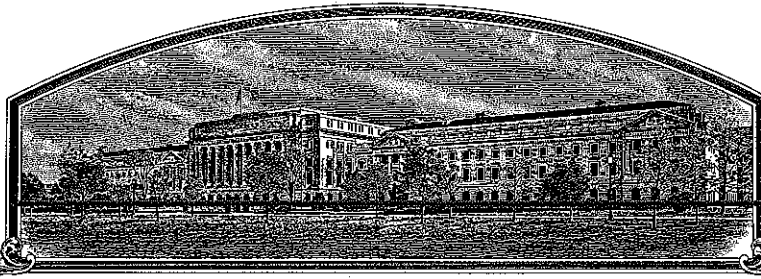


No.

200500196



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Monsanto Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Panola'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifth day of June, in the year two thousand and six.

Attest:

[Signature]
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

[Signature]
Secretary of Agriculture

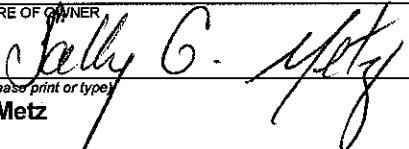


U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Monsanto Company		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME D99*5725		3. VARIETY NAME Panola	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 800 N. Linbergh Blvd. Mail Zone: E3NA Creve Coeur, MO 63167		5. TELEPHONE (include area code) 314.694.6089		FOR OFFICIAL USE ONLY PVPO NUMBER 200500196 FILING DATE April 5, 2005	
		6. FAX (include area code) 314.694.7250			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Corporation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware		9. DATE OF INCORPORATION 1933	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Ms. Sally Metz 800 N. Linbergh Blvd. Creve Coeur, MO 63167 Copy to: Chris Bruns rbruns@frii.com					
11. TELEPHONE (include area code) 314.694.6089		12. FAX (include area code)		13. E-MAIL	
14. CROP KIND (Common Name) Soft Red Winter Wheat		16. FAMILY NAME (Botanical) Gramineae		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP Triticum eastivum		17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)					
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)					
20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section B3(a) of the Plant Variety Protection Act) <input type="checkbox"/> X YES (If "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (If "no", go to item 23)					
21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, WHICH CLASSES <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED					
22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)					
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)					
24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)					
25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF OWNER 			SIGNATURE OF OWNER		
NAME (Please print or type) Sally Metz			NAME (Please print or type)		
CAPACITY OR TITLE Director Wheat Technology		DATE 3/22/05		CAPACITY OR TITLE	
				DATE	

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 <http://www.ams.usda.gov/lsg/seed.htm>.

ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
- (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
- (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

The variety 'Panola' will be constituted from Breeder seed, and proceed through Foundation, Registered and Certified in succeeding generations. Generations which may be multiplied will be limited to Breeder seed, Foundation, Registered and Certified.

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

Certified seed stocks of Panola will be available in the Fall of 2005.

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Exhibit A.

Origin and Breeding History of Panola

The single cross that produced Panola (aka. D99*5725), "E87-6646/2580" was made in the 1992 fall greenhouse at Brookston, IN. 'E87-6646' was an early maturing AgriPro experimental line selected from a 4-way cross between a "Morocco/Olesen" F3 selection and a single cross F1 between two old AgriPro breeding lines, "74-8A-55-2/74-9A-33-3". Nothing further is known about the parentage of "74-8A" or "74-9A". Panola's male parent was the Pioneer Hybred International wheat variety, "2580". The F1 seeds produced from this cross were planted in a field near Jonesboro, AR, in fall of 1993. Seeds harvested from this F1 row were grown in a 1994-95 F2 bulk plot near Brookston, IN. A portion of the harvested F2 bulk plot was space-planted in a 1995-96 F3 bulk plot near Jonesboro, AR. A portion of the harvested F3 bulk plot was thin-seeded in a 1996-97 F4 bulk plot near Shelby, MS. Heads were selected from this F4 bulk population and grown as F5, Pre-Y1 head-rows in a field near Jonesboro, AR in 1997-98. The head-row selection that became Panola (D99*5725) was selected for medium height, medium-early heading, moderate resistance to field races of stripe rust, and generally attractive head type. The F6 generation was grown in Observation plots near Jonesboro, AR and Cleveland, MS in 1998-99. Panola has been in advanced testing from 2000 to the present and was tested as AW D99*5725 in the 2002-2003 Uniform Southern Soft Wheat Nursery (entry #22). Panola was also tested in the state-run Louisiana, Georgia, and South Carolina official wheat variety trials in 2002-03. In 2003-04, Panola was in official state variety trials in Arkansas, Louisiana, Mississippi, Florida, Georgia, South Carolina, and North Carolina.

In 2001, 100 purification headrows were grown near Jonesboro, Arkansas, from heads selected from an F7 plot. Eighty-five of these headrows were judged "true-to-type" and were bulk-harvested. This seed was shipped to Colorado for initial Breeders seed increase. In 2002 a 0.2 acre initial Breeders seed increase was grown in Berthoud, Colorado. In 2003, a 23 acre Breeders seed increase was grown in Yuma, Arizona, which produced 167,600 pounds of Breeders seed, and a 4.9 acre Breeders seed increase was grown in Lucerne, Colorado that produced 13,622 pounds of Breeders seed. Panola has been uniform and stable since 2003. Less than 0.8% of the plants were rogued from the Breeders Seed increase in 2004. Approximately 90% of the rogued variant plants were taller height wheat plants (8 to 15 cm) and 10% were awnletted plants.

Exhibit B.
Statement of Distinctness

Panola is most similar to the soft red winter wheat 'Pioneer 2580'. However, it can be easily distinguished by the following morphological characteristics:

- Panola has a midwide glume width; Pioneer 2580 has a wide glume width (Lucerne, CO 2003-2004).
- Panola has a midlong glume length; Pioneer 2580 has a long glume length (Lucerne, CO 2003-2004).
- Panola has a strap head shape; Pioneer 2580 has a tapering head shape (Lucerne, CO 2003-2004).

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* Spp.)

NAME OF APPLICANT(S) Monsanto Company	TEMPORARY OR EXPERIMENTAL DESIGNATION D99*5725	VARIETY NAME Panola
ADDRESS (Street and No. or RD No., City, State, Zip Code, and Country) 800 N. Linbergh Blvd. Creve Coeur, MO 63167		FOR OFFICIAL USE ONLY PVPO NUMBER 200500196

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g., or) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____. Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

- 1=Common
2=Durum
3=Club
4=Other (specify) _____

2. VERNALIZATION:

- 1=Spring
2=Winter
3=Other (specify) _____

3. COLEOPTILE ANTHOCYANIN:

- 1=Absent 2=Present

4. JUVENILE PLANT GROWTH:

- 1=Prostrate 2=Semi-erect 3=Erect

5. PLANT COLOR (boot stage):

- 1 = Yellow-Green
2 = Green
3 = Blue-Green

6. FLAG LEAF (boot stage):

- 1 = Erect

- 2 = Recurved

- 1 = Not Twisted

- 2 = Twisted

- 1 = Wax Absent

- 2 = Wax Present

7. EAR EMERGENCE:

Number of Days (Average)

Number of Days Earlier Than *

Same As *

Number of Days Later Than *

* AGS 2000

*Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

8. ANTHOR COLOR:

- 1 = YELLOW 2 = PURPLE

9. PLANT HEIGHT: (from soil to top of head, excluding awns):

5

0	9	1
---	---	---

cm (Average)

200500196

--	--

cm Taller Than

0	0.5
---	-----

Same As

cm Shorter Than

* AGS 2000

10. STEM:

A. ANTHOCYANIN

1

1 = Absent 2 = Present

B. WAXY BLOOM

2

1 = Absent 2 = Present

C. HAIRINESS (last internode of rachis)

2

1 = Absent 2 = Present

D. INTERNODE

1

1 = Hollow 2 = Semi-solid 3 = Solid

5

Number of Nodes

E. PEDUNCLE

0

1 = Erect 2 = Recurved 3 = Semi-erect

0	0
---	---

cm Length

F. AURICLE

2

Anthocyanin 1 = Absent 2 = Present

2

Hair: 1 = Absent 2 = Present

11. HEAD: (At Maturity)

A. DENSITY

2

1 = Lax
2 = Middense (Laxidense)
3 = Dense

B. SHAPE

3

1 = Tapering
2 = Clavate
3 = Strap
4 = Other (specify) _____

C. CURVATURE

2

1 = Erect
2 = Inclined
3 = Recurved

D. AWNEDNESS

4

1 = Awnless
2 = Apically awnletted
3 = Awnletted
4 = Awned

12. GLUMES: (At Maturity)

A. COLOR

1

1 = White
2 = Tan
3 = Other (specify) _____

E. BEAK WIDTH

2

1 = Narrow
2 = Medium
3 = Wide

B. SHOULDER

2

1 = Wanting 2 = Oblique
3 = Rounded 4 = Square
5 = Elevated 6 = Apiculate
7 = Other (Specify) _____

F. GLUME LENGTH

2

1 = Short (ca. 7mm)
2 = Medium (ca. 8mm)
3 = Long (ca. 9mm)

C. SHOULDER WIDTH

2

1 = Narrow
2 = Medium
3 = Wide

G. WIDTH

2

1 = Narrow (ca. 3mm)
2 = Medium (ca. 3.5mm)
3 = Long (ca. 4mm)

D. BEAK

3

1 = Obtuse
2 = Acute
3 = Acuminate

13. SEED:

A. SHAPE

E. COLOR

6

1

1 = Ovate
2 = Oval
3 = Elliptical

3

1 = White
2 = Amber
3 = Red
4 = Other (Specify) _____

200500196

B. CHEEK

1

1=Rounded
2=Angular

F. TEXTURE

2

1 = Hard
2 = Soft
3 = Other (Specify) _____

C. BRUSH

2

1 = Short
2 = Medium
3 = Long

1

1 = Not Collared
2 = Collared

G. PHENOL REACTION (See Instructions)

0

1 = Ivory
2 = Fawn
3 = Light Brown
4 = Dark Brown
5 = Black

D. CREASE

1

1 = Width 60% or less of Kernel
2 = Width 80% or less of Kernel
3 = Width Nearly as Wide as Kernel

H. SEED WEIGHT

N A

g/1000 Seed (Whole number only)

I. GERM SIZE

1

1 = Depth 20% or less of Kernel
2 = Depth 35% or less of Kernel
3 = Depth 50% or less of Kernel

3

1 = Small
2 = Midsize
3 = Large

14. DISEASE:

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

(0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

0

Stem Rust (*Puccinia graminis* f. sp. *tritici*)

0

Leaf Rust (*Puccinia recondita* f. sp. *tritici*) Field races

4

Stripe Rust (*Puccinia striiformis*)

0

Loose Smut (*Ustilago tritici*)

0

Tan Spot (*Pyrenophora tritici-repentis*)

0

Flag Smut (*Urocystis agropyri*)

0

Halo Spot (*Selenophoma donacis*)

0

Common Bunt (*Tilletia tritici* or *T. laevis*)

0

Septoria nodorum (Glume Blotch)

0

Dwarf Bunt (*Tilletia controversa*)

0

Septoria avenae (Speckled Leaf Disease)

0

Karnal Bunt (*Tilletia indica*)

0

Septoria tritici (Speckled Leaf Blotch)

4

Powdery Mildew (*Erysiphe graminis* f. sp. *tritici*) Field races

0

Scab (*Fusarium* spp.)

0

Snow Molds

0

Black Point (Kernel Smudge)

0

Common Root Rot (*Fusarium*, *Cochliobolus* and *Bipolaris* spp.)

0

Barley Yellow Dwarf Virus (BYDV)

0

Rhizoctonia Root Rot (*Rhizoctonia solani*)

0

Soilborne Mosaic Virus (SBMV)

0

Black Chaff (*Xanthomonas campestris* pv. *translucens*)

0

Wheat Yellow (Spindle Streak) Mosaic Virus

0

Bacterial Leaf Blight (*Pseudomonas syringae* pv. *syringae*)

0

Wheat Streak Mosaic Virus (WSMV)

Other (specify) _____

Other (specify) _____

Other (specify) _____

Other (specify) _____

Other (specify) _____

Other (specify) _____

Other (specify) _____

15. INSECT:

(0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

0

Hessian Fly (*Mayetiola destructor*)

Other (specify) _____

0

Stem Sawfly (*Cephus* spp.)

Other (specify) _____

0

Cereal Leaf Beetle (*Oulema melanopa*)

Other (specify) _____

ST-470-06 (4-03) designed by the Plant Variety Protection Office using Microsoft Word

15. INSECT: (continued)

(0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

0

Russian Aphid (*Diuraphis noxia*)

☐

Other (specify)

2005 00196

0

Greenbug (*Schizaphis graminum*)

☐

Other (specify)

0

Aphids

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

None

Exhibit D.
Additional Description of Panola

Panola is a soft red winter wheat bred and developed by AgriPro Wheat. Panola is a medium height wheat with medium-early season heading and maturity. Panola has shown moderate resistance to field races of Stripe rust and Powdery mildew.

Juvenile growth habit is semierect. Plant color at boot stage is green. Flag leaf at boot stage is erect to 90 degree angle from the stem and twisted. Waxy bloom is present on the head, stem and flag leaf sheath. Anther color is yellow. Head shape is strap, middense and awned. Glumes are glabrous, midwide in width and midlong in length with oblique shoulders and medium length acuminate beaks. Seed shape is ovate. Brush hairs are midlong in length and occupy a midsize area of the seed tip. Seed crease depth is shallow and width is narrow. Seed cheeks are rounded.

Panola's grain yield data indicates that it is adapted to most of the midsouthern and southeastern soft wheat areas.

200500196

AgriPro Wheat

SOFT WHEAT QUALITY SUMMARY

Year	Loc	Milling Quality			Baking Quality			TG R	Norris Hard
		Brk Flr %	Tot Flr %	WhtProt 14%mb	FlrProt 14%mb	C.Diam mm			
PANOLA									
2003	DA	39.5	66.1	10.7	9.2	19.0	4	12	
2003	SM	34.2	66.4	10.2	8.6	18.5	5	13	
2002	SM	36.8	67.5	10.9	9.6	18.3	4	6	
2002	DA	37.1	66.3	9.6	7.9	18.9	5	8	
2001	DA	41.2	67.8	8.2	6.8	18.1	4	8	
2001	SM	37.3	69.3	10.0	8.7	18.6	4	21	
2000	SM	39.5	70.6	12.1	10.7	18.7	5	25	
2000	DA			10.8				14	
	AVE	37.9	67.7	10.3	8.7	18.6	4.4	13	

Brk Flr: Break flour Quad Sr. mill

Tot Flr: Break + Reduction flour Quad Sr. mill

CDiam: Cookie diameter of 2 cookies

TG: Cookie Top Grain rating, 1=excellent 9=Unacceptable

Supporting data for AgriPro "Panola", soft red winter wheat

Panola Yield Data Summary

State	No. TRLS	Panola Yield (bu/Ac)	Trial Mean (bu/Ac)	Panola Yld.Adv.	AGS2000 Yield Mean	Panola Yld.Adv.
MO	5	75.0	76.8	-1.8	80.5	-5.5
TN	4	63.8	63.7	0.0	71.7	-7.9
AR	32	75.3	71.5	3.8	74.6	0.7
MS	12	72.8	70.4	2.3	72.3	0.5
AL	2	62.0	59.6	2.4	51.0	11.0
LA	11	84.5	72.0	12.6	76.3	8.3
GA	12	81.5	77.6	3.9	80.0	1.5
SC	11	76.2	68.2	8.0	71.6	4.6
NC	6	75.0	70.9	4.1	71.8	3.2

**TW
AVG**

VARIETY	(lbs/bu)
PANOLA	56.9
AGS 2000	57.5
54 locs	

Panola's test weight averages 0.6 lbs/bu less than AGS 2000 over 54 locations.

**HEADING
AVG**

VARIETY	(Day of Year)
PANOLA	102.3
AGS 2000	100.8
48 locs	

**MATURITY
AVG**

VARIETY	(Day of Year)
PANOLA	141.0
AGS 2000	140.8
4 locs	

Panola's heading averages 1.5 days later than AGS 2000 over 48 locations.
Panola's maturity averages 0.2 days later than AGS 2000 over 4 locations.

**Height
AVG**

VARIETY	(inches)	(cm)
PANOLA	36.0	91.4
AGS 2000	36.2	91.9
59 locs		

Panola's height averages 0.5 centimeters shorter than AGS 2000 over 59 locations.

**Stripe Rust
AVG**

VARIETY	(1=0%; 9=100%)
PANOLA	1.6
AGS 2000	6.2
6 locs	

**Powdery Mildew
AVG**

VARIETY	(1=0%; 9=100%)
PANOLA	2.6
AGS 2000	2.1
9 locs	

2000 - 2004
Data on AgriPro Wheat
Agronomy & Pathology

200500196

VARIETY	TW (lbs/bu)	TWS										Height										Maturity										VARIETY																			
		DA	MC	PG	SC	KC	PC	VA	Kib	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh												
AGS 2000	57.5	59	61	59	57	60	55	57	52	59	61	60	61	58	53	56	62	61	62	59	60	57	55	55	54	59	56	53	55	57	60	57	56	53	53	51	54	62	59	57	62	59	62								
PANOLA	56.9	58	58	57	58	55	55	58	49	57	61	62	53	56	58	59	55	56	58	60	54	60	67	57	55	55	54	59	56	53	55	57	60	57	56	58	56	53	57	66	51	53	53	51	52	59	59	57	62	59	61
54 locs																																																			

54 locs

VARIETY	HEADING	'04		U of A Locs										MSU										USA										Clemson										'03										LSU Locs										UGA Locs										'02										'01										'04									
		CS	AVG	DA	PSR	SM	PG	KC	Ksr	Kib	Mar	st	sh	BM	CM	IM	NM	WL	JL	BCL	TG	PG	Pe	q	MG	EC	LC	SCe	DA	SM	DA	SA	BA	BL	CL	XL	SL	TG	PG	MG	EC	LC	CS	DA	JA	CS	LL	CS	JH	PSR	AVG	Ksr	Kib	st	sh																																																
AGS 2000	100.8	97	99	111	111	91	106	111	105	99	105	107	103	97	100	93	86	88	84	85	92	92	96	107	113	102	109	118	108	109	108	95	78	82	96	89	101	88	115	118	106	108	113	##	89	92	107	105	140.8	143	144	137	139																																																		
PANOLA	102.3	102	107	112	114	91	110	113	106	104	108	108	108	93	100	99	93	88	94	90	88	90	91	84	106	111	98	109	119	108	109	110	88	85	97	96	91	98	111	117	111	109	116	##	93	101	108	109	141.0	144	143	137	140																																																		
48 locs		4 locs																																																																																																					

48 locs

VARIETY	AVG	cm	'04	MSU										USA										Clmson										103										LSU Loos										USA Loos										Clm.	'02	'01	'00
				CA	DA	MC	SM	PG	SC	PC	VA	Kib	Mar	BM	CM	IM	NM	RM	WL	JL	BdL	TG	PG	MG	SC	EC	LC	FC	SCe	CS	DA	SM	CS	DA	SA	BL	CL	XL	SL	WL	TG	PG	MG	SC	EC	LC	FC	DA	JAH	SM	CS	DA	SM	LL	CS	MC											
AGS 2000	36.2	91.9	109	104	86	99	101	81	86	82	89	76	97	94	102	94	99	81	84	89	84	81	104	102	88	89	84	97	79	71	76	85	92	100	96	90	100	84	82	107	99	91	109	97	84	94	92	91	83	95	100	83	100	98													
PANOLA	36.0	91.4	108	112	97	101	101	76	81	84	89	74	94	94	104	94	104	84	89	84	76	76	104	99	81	81	84	89	75	68	71	80	90	98	102	90	102	86	75	102	94	89	104	97	97	86	86	107	85	84	95	92	95	90	97	95	103	91	112	104							

59 locs

Location Abbreviations

BA = Bay, AR (Syngenta)
BC = Bertie Co., NC (NCSU)
BCL = Bossier City, LA (LSU)
BL = Baton Rouge, LA (LSU)
BM = Brooksville, MS (MSU)
CA = Crawfordville, AR (sandy)
CL = Crowley, LA (LSU)
CM = Cleveland, MS (MSU)
CS = Cleveland, MS
DA = DeWitt, AR
DT = Dyersburg, TN
EC = Clemson, SC (early)
FC = Florence, SC (Clemson)
GH = Greenhouse
GS = Greenville, MS (TNS)
HA = Holly Grove, AR
HK = Hopkinsville, KY

HN = Hautsstadt, IN
IM = Issaquena Co., MS (MSU)
JA = Jonesboro, AR
JH = Jonesboro, AR (high mgmt)
JL = Jeanerette, LA (LSU)
KC = Kinston, NC (NCSU)
Kib = Kibler, AR (UofA)
Ker = Keiser, AR (UofA)
LC = Clemson, SC (late)
LL = Lake Providence, LA
MA = Marion, AR (sandy)
Mar = Marianna, AR (UofA)
MC = Marion, AR (heavy clay)
MG = Midville, GA (UGA)
NM = Newton, MS (MSU)
OM = Olive Branch, MS (MSU)
PC = Plymouth, NC (NCSU)
PG = Plains, GA (UGA)

PSR = Jonesboro, AR (Pure Seed Rows)
RC = Rowan Co., NC (NCSU)
RM = Raymond, MS (MSU)
Roh = Rohwer, AR (UofA)
SC = Blackville, SC (Clemson)
SCe = Blackville, SC (Clemson Ext.)
SL = St. Josephs, LA (LSU)
SM = Charleston, MO (for Sikeston in '01-'00)
St = Stuttgart, AR (UofA)
St-H = Stuttgart, AR (UofA, High Mgmt)
TG = Tifton, GA (UGAext)
VA = Southeastern VA (FFR/S)
WL = Winnsboro, LA (LSU)
XL = Alexandria, LA (LSU)

VARIETY	PM	TWS (lbs/bu)										Height (in.)										Maturity U of A Locs										VARIETY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		AVG	DA	MC	PG	SC	KC	PC	VA	Kib	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
AGS 2000	2.1	3	3	3	2	1	1	0	5	1	3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

9 locs

Stripe	Rust	TWS (lbs/bu)										Height (in.)										Maturity U of A Locs										VARIETY			
		DA	MC	PG	SC	KC	PC	VA	Kib	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar	St	sh	Mar		St	sh	
		'04		'05		'06		'07		'08		'09		'10		'11		'12		'13		'14		'15		'16		'17		'18		'19		'20	
		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS		CS	
		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG		AVG	
		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000		AGS 2000	
		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA		PANOLA	

6 locs

**U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE**

**EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP**

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) Monsanto Company	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER D99*5725	3. VARIETY NAME Panola
4. ADDRESS (Street and No. or RD No., City, State, Zip Code, and Country) 800 N. Linbergh Blvd. Mail Zone:E3NA Creve Coeur, MO 63167	5. TELEPHONE (include area code) 314.694.6089	6. FAX (include area code) 314.694.7250
7. PVPO NUMBER 200500196		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. ☒ YES ☐ NO

10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

Please see following page.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provide and employer.

Exhibit E.
Statement of the Basis of Applicant's Ownership

The variety for which Plant Variety Protection is hereby sought was developed by J. Barton Fogleman, an employee of Agripro Wheat. By agreement between employees and Agripro Wheat all rights to any invention, discovery, or development made by the employee while employed by Agripro Wheat, were assigned to Agripro Wheat, with no rights of any kind pertaining to 'Panola' being retained by the employees.

By contractual agreement the variety 'Panola' was purchased from Agripro Wheat, a business unit of Advanta USA, Inc. in June of 1996 and is currently owned by Monsanto Company.